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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

FINDLEY, CHRISTOPHER G

ART UNIT

PAPER NUMBER

2635

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/19/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/762,214

Applicant(s)

MCKAY ET AL.

Examiner

Christopher Findley

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :02/09/2004, 09/03/2004, 03/07/2005, 05/20/2005, 11/09/2005.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13-16, 23-28, 41-44, 51-56 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites "A method for demultiplexing an image stream having a plurality of images...", which implies the image stream is a "multiplexed" image stream comprising a plurality of images from a plurality of image sources. However, the claim as a whole, fails to suggest a "multiplexed" image stream or at the least, an image stream comprising a plurality of images from different sources.

Claim 41 is rejected for similar problems as specified in claim 13.

For the purpose of art consideration, "an image stream" as claimed is construed as a multiplexed image stream.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims (29-40, 45-50) and (41-44, 51-56) are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Independent claim 29 recites "a computer program product" that fails to meet the statutory requirement set forth in the Interim Guidelines, Annex IV (a). The computer program product has to be embodied in a computer-readable media. Claim 29 fails to recite this aspect. Claims 30-40 and 45-50 depend on claim 29.

**(a) Functional Descriptive Material: "Data Structures" Representing
Descriptive Material Per Se or Computer Programs Representing
Computer Listings Per Se**

Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer.

Independent claim 41 is rejected for similar problem as stated in claim 29. Claims 42-44 and 51-56 depend on claim 41.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an

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application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-6, 8-9, 11-14, 16, 21, 28-34, 36-37, 39-42, 44, 49, 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Steven G. Goodridge, "Content-based software demultiplexing of surveillance video", Proc. SPIE Vol. 4232, p. 513-520, February/2001 (hereinafter, "Goodridge").

Re claim 1, Goodridge discloses a method for demultiplexing video images in a video stream (Abstract), the video images produced by a plurality of cameras (Abstract, Introduction, which discuss multiplexed video stream from different cameras), the method comprising:

receiving at least a portion of the video stream composed of a plurality of video images in a processor (section 2: Problem Formulation, which discusses software based demultiplexing of multiplexed video sequence. Thus, the step of "receiving" the multiplexed video sequence is inherent as well as a processor because of software implementation);

parsing a first video image from the video stream (section 2: Problem Formulation, which discusses "extracting" one camera view at a time from the multiplexed video sequence);

parsing a second video image from the video stream (section 2: Problem Formulation, which discusses "extracting" one camera view at a time from the multiplexed video sequence);

determining an amount of mismatch between the first and second video image (sections 2-3, which discuss a measure of "similarity" of image view(s) between images from the multiplexed video sequence. The similarity is based on difference histograms representative of mismatch between two video images);

if the mismatch is below a mismatch threshold, assigning the first and second video images to a first channel (sections 2-4, which also discuss that if the "similarity" based on the difference metrics is below a preset threshold, chances are the images originated from the same camera i.e. from the same channel).

Re claim 2, which further recites "wherein the first channel includes a memory storage location for storing video images", in Goodridge (Abstract, section 1, fig. 1), the channels are the plural cameras for capturing image views. Hence, these cameras have storage capability for video surveillance application.

Re claim 3, which further recites "wherein the first channel is associated with a first camera" (see discussion in claim 2, see fig. 1, which illustrates respective channel views for respective cameras).

Re claim 4, which further recites "wherein if the mismatch is above a mismatch threshold, assigning the first video image to a first channel and the second video image to a second channel", Goodridge also discloses this aspect (sections 2-4, which also discuss that if the "similarity" based on the difference metrics is above a preset threshold, chances are a new shot has been detected from a different camera. Thus, these shot(s) are "classified" to respective camera(s) i.e., channel(s) for display).

Re claim 5, which further recites "wherein the second channel is associated with a second camera", see discussion in claim 3 above.

Re claim 6, which further recites "wherein after each channel associated with a camera has been assigned a video image, comparing a new video image from the video stream with at least one video image from each channel; determining an amount of mismatch between the new video image and the at least one video image from each channel; and assigning the new video image to a channel having the lowest mismatch", in Goodridge (sections 2-4), the algorithm for computing difference metrics is continuous for "all" images in the multiplexed video sequence in order for the respective camera(s) i.e., channel(s) are properly assigned or classified. See also discussions in claims 1-4 above.

Re claim 8, which further recites "comparing a third video image to the first and the second video images to determine a first and a second mismatch; if the first and second mismatches are above a mismatch threshold assigning the third video image to a third channel", this aspect has been considered and rejected w/r to claims 1, 4 and 6 above.

Re claim 9, which further recites "comparing a third video image to the first and the second video images to determine a first and a second mismatch; if the first mismatch and second mismatches are below a mismatch threshold, assigning the third video image to the channel associated with the lower mismatch", this aspect has been considered and rejected w/r to claims 1, 4 and 6 above. In Goodridge (sections 2-5),

threshold can be varied to take into account different similarity metrics so that channel classification is properly assigned.

Re claim 11, which further recites "wherein each channel is associated with a camera", see analysis and rejection w/r to claims 1-4 above.

Re claim 12, which further recites "providing the number of cameras to the processor", see analysis and rejection w/r to claims 1-4 above (Goodridge pertains to a software based demultiplexing of multiplexed video sequence originated from plural cameras).

Claim 13 recites "A method for demultiplexing an image stream having a plurality of images, the method comprising: comparing each new image within the image stream to a representative image associated with a camera to determine a mismatch value; if each of the mismatch values are above a mismatch threshold, associating the new image with a new camera". The claimed limitations have been analyzed and rejected w/r to claim 1 above. In regards to "a representative image" as further recited in claim 13, Goodridge teaches this aspect through a "reference image adaptation" (section 6). A reference image in Goodridge serves as a representative image as claimed.

Re claim 14, which further recites "wherein if any of the mismatch values are below the mismatch threshold, selecting the lowest mismatch value and associating the new video image with the camera associated with the lowest mismatch value", this aspect has been considered and rejected w/r to claim 6 above.

Re claim 16, which further recites "wherein after a predetermined number of video images are assigned to a particular camera, the total number of cameras can be

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determined”, Goodridge also teaches this aspect (section 2). In this section, a measure of similarity is ascertained in order to classify images belonging to a view V_i or to a different view. Hence, this classification can determine the total number of cameras based on a camera view V_i , being a member of the set $\in \{V_1, V_2, \dots, V_N\}$, where N is unknown.

Re claim 21, which further recites “providing a user interface for setting the mismatch level; receiving user input of the mismatch level”, Goodridge further discloses this aspect (section 7: Application Integration, also fig. 6 which is an interface to enable adjusting difference metric threshold).

Re claim 28, which further recites “selecting a portion of the reference images to be used for comparison to a same portion of the new video image”. Goodridge discloses this aspect (section 5: Comparison Window Selection).

Claim 29 pertains to a computer program for executing the method steps of claim 1. Thus, it has been analyzed and rejected with respect to claim 1. Furthermore, Goodridge discloses software-based demultiplexing, which inherently necessitates executing a computer program.

Re claim 30, see claim 2.

Re claim 31, see claim 3.

Re claim 32, see claim 4.

Re claim 33, see claim 5.

Re claim 34, see claim 6.

Re claim 36, see claim 8.

Re claim 37, see claim 9.

Re claim 39, see claim 11.

Re claim 40, see claim 12.

Re claim 41, see claim 13. Claim 13 pertains to a computer program for executing the method steps of claim 13. Thus, it has been analyzed and rejected with respect to claim 13. Furthermore, Goodridge discloses software-based demultiplexing, which inherently necessitates executing a computer program.

Re claim 42, see claim 14.

Re claim 44, see claim 16.

Re claim 49, see claim 21.

Re claim 56, see claim 28.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 10, 15, 19, 20, 22-25, 35, 38, 43, 47-48, 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodridge as applied to claim 6, 4, 14 above respectively, and further in view of Ahmad, US 6,259,817.

Re claim 7, which further recites "wherein if the lowest mismatch is above a discard threshold, then discarding the new video image rather than assigning the new

video image to a channel". Goodridge fails to teach this aspect. However, Ahmad does (col. 6, line 62-67). Ahmad teaches this to discount miniscule changes between images, which often implies similar or same images of a scene. Thus, no additional memory is necessary when a new video image is discarded.

Therefore, taking the combined teaching of Goodridge and Ahmad as a whole, it would have been obvious to one of ordinary skills in the to utilize frame discarding in order to efficiently utilized memory capacity.

Re claim 10, which further recites "comparing a third video image to the first and the second video images to determine a first and second mismatch; if both the first and the second mismatches are above a discard threshold, discarding the third video image", this aspect has been considered and rejected w/r to claims 1, 4, 6, and 7 above.

Re claim 15, which further recites "wherein if the mismatch values are all above a discard level, discarding the new video image", this aspect has been considered and rejected w/r to claim 7 above.

Re claim 19, which further recites, "wherein the first video image and the second video image are sub-sampled prior to comparison". Goodridge does not explicitly use the term subsampling per se. However, such technique is implied in Goodridge. For example, Goodridge suggests comparing only a "portion" of an image view (section 5: Comparison Window Selection). In order to compare a portion of an image view, subsampling would have been necessitated to extract said portion.

Re claim 20, which further recites "wherein if the video image stream contains header information, discarding the header information". This aspect is implied through

the discussion of claim 7 above. That is, header information associated with an image destined to be discarded will too be discarded. Furthermore, in Goodridge, since demultiplexing is carried out through content-based image comparison as opposed to conventional image identification through header information, discarding header information would be have been obvious and expected because there is no need for such information.

Re claim 22, which further recites "providing a user interface for setting the discard level; receiving user input of the discard level". With reference to the discussion of claims 7 and 20 above, the combination of Goodridge and Ahmad as a whole would have obviated the motivation to discard video image, and a user interface to set various thresholds, including discard threshold(s).

Re claim 23, which further recites "allowing a user to assign a video image to a camera even though the mismatch is above the discard error level". With reference to the discussion of claims 7 and 20 above, the combination of Goodridge and Ahmad as a whole would have obviated the motivation for a user to use the interface not only to set various thresholds, including discard threshold(s), but to also subjectively assign camera to his choosing. Such capability is implied and necessitated through the user interface (Goodridge, fig. 6).

Re claim 24, which further recites "wherein a user may select video images to discard prior to comparison". With reference to the discussion of claims 7 and 20 above, the combination of Goodridge and Ahmad as a whole would have obviated the motivation for a user to use the interface not only to set various thresholds, including

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discard threshold(s), but to also to subjectively select which image(s) to be discarded prior to image comparison. Such capability is implied and necessitated through the user interface (Goodridge, fig. 6).

Re claim 25, which further recites "the method according to claim 15, wherein if a video image is associated with a camera and a new video image is also associated with the camera, the new video image becomes the reference image for all further comparisons", Goodridge teaches this aspect (section 6: Reference Image Adaptation).

Re claim 35, see claim 7. Claim 35 pertains to a computer program for executing the method steps of claim 7. Thus, it has been analyzed and rejected with respect to claim 7. Furthermore, Goodridge discloses software-based demultiplexing, which inherently necessitates executing a computer program.

Re claim 38, see claim 10.

Re claim 43, see claim 15.

Re claim 47, see claim 19.

Re claim 48, see claim 20.

Re claim 50, see claim 22.

Re claim 51, see claim 23.

Re claim 52, see claim 24.

Re claim 53, see claim 25.

9. Claims 26-27, 54-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodridge.

Re claim 26, which further recites “the method according to claim 13, wherein a user may clear all reference images and begin the process of assigning a video image to each camera images”. Although Goodridge is silent on this aspect, such capability is implied and necessitated through the user interface (Goodridge, fig. 6, sections 6-7). In Goodridge, the user interface would have obviated the motivation to subjectively clear all reference images and to begin camera assignment to each camera images, especially for CCTV video surveillance application.

Re claim 27, which further recites “the method according to claim 26, further comprising: automatically adjusting brightness within the reference video images and the new video image so that brightness levels are substantially similar prior to comparison. Although Goodridge is silent on this aspect, such capability is implied and necessitated through the user interface (Goodridge, fig. 6, sections 6-7, e.g., “video renderer”).

Re claim 54, which pertains to a computer program for executing the method steps of claim 26. Thus, it has been analyzed and rejected with respect to claim 26. Furthermore, Goodridge discloses software-based demultiplexing, which inherently necessitates executing a computer program.

Re claim 55, which pertains to a computer program for executing the method steps of claim 27. Thus, it has been analyzed and rejected with respect to claim 27. Furthermore, Goodridge discloses software-based demultiplexing, which inherently necessitates executing a computer program.

10. Claims 17-18 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodridge as applied to claims 1 and 29 above respectively, and further in view of Guichard et al, "Software-based Universal De-multiplexing", Proceedings of SPIE, Vol. 4232, February/2001 (hereinafter, "Guichard").

Re claim 17, which further recites "wherein channel assignment is performed in real-time", Goodridge teaches a configuration (fig. 1) for video surveillance that appears to be real-time, but not specifically disclosed. However, Guichard does (section 4: Conclusion), which summarizes the algorithm for real-time de-multiplexing system in order to de-multiplex a live feed of multiplexed video.

Therefore, taking the combined teaching of Goodridge and Guichard as a whole, it would have been obvious to incorporate real-time demultiplexing in order to de-multiplex a live feed of multiplexed video, especially for law enforcement purposes (Guichard, section 4).

Re claim 18, which further recites "wherein the digital image stream is parsed and the video images are assigned to a channel in real-time", this aspect has been considered and rejected w/r to claim 17 above. It is noted that video-based demultiplexing as taught in Goodridge and Guichard involves "parsing" video images from the multiplexed video stream.

Re claim 45, see claim 17. Claim 45 pertains to a computer program for executing the method steps of claim 17. Thus, it has been analyzed and rejected with respect to claim 17. Furthermore, Goodridge discloses software-based demultiplexing, which necessitates executing a computer program.

Re claim 46, see claim 18.

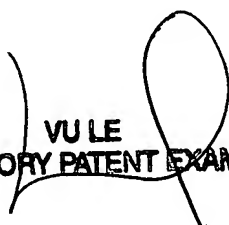
Contact

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Findley whose telephone number is (571) 270-1199. The examiner can normally be reached on Monday-Friday 7:30am-5pm, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571) 272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Chris Findley/


VU LE
SUPERVISORY PATENT EXAMINER